APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,729	12/12/2001	Robert Stephen McNamara	9772-0302-999	9682

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EXAMINER
CHEN, PO WEI

ART UNIT	PAPER NUMBER
2676	9

DATE MAILED: 08/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO 90C (Rev 10/03)

	Application No.		Applicant(s)	
Office Action Summary	10/020,729		MCNAMARA ET AL.	
	Examiner		Art Unit	
	Po-Wei (Dennis) Chen		2676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 June 2004*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22,24-30,32 and 34-57* is/are pending in the application.

    4a) Of the above claim(s) *34-39* is/are withdrawn from consideration.

5)☒ Claim(s) *22,24-27,30,32 and 45* is/are allowed.

6)☐ Claim(s) *1-21, 28-29 and 40-44* is/are rejected.

7)☒ Claim(s) *46-57* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

In response to an Amendment received on June 1, 2004. This action is final.

Claims 1-22, 24-30, 32 and 34-57 are pending in this application. Claims 1, 22, 24, 26,

30, 34, 35, 40 and 45 are independent claims.

The present title of the invention is "Efficient Movement of Fragment Stamp".

The Group Art Unit of the Examiner case is now 2676. Please use the proper Art Unit

number to help us serve you better.

Election/Restrictions

1.   This application contains claims 34-39 are drawn to an invention nonelected in

Paper No. 5. A complete reply to the final rejection must include cancellation of

nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3.   Claims 1-21, 28-29 and 40-44 are rejected under 35 U.S.C. 102(e) as being

anticipated by Voorhies et al. (US 6,504,542; refer to as Voorhies herein).

4.   Regarding claim 1, Voorhies discloses a method for area rasterization using sense

points comprising:

A method of traversing pixels of a graphic object with a fragment stamp, the fragment stamp having a plurality of probe points, the graphic object being defined with respect to an array of pixels that is divided into an array of contiguous but non-overlapping stamp positions at which the fragment stamp can be placed (lines 1-11 of abstract and Fig. 31A; the convex region with sense points correspond to fragment stamp which is defined as having a plurality of probe points. And the points are moved for the purpose of identifying an area in the primitive for rendering pixels therein. Thus, the convex region can be considered as fragment stamp);

At a current one of the stamp positions, evaluating whether a plurality of stamp positions that are adjacent to the current stamp position are valid positions (lines 14-67 of column 33 and Fig. 28).

Wherein the evaluating step further comprises determining, at the current stamp position, whether a segment formed by two of the probe points intersects the graphic object and wherein at least one of the two probe points are exterior to the current stamp position (lines 18-33 of column 34 and Fig 27A and 28).

The evaluating step further comprises determining whether a stamp position is a sliver position, a sliver position being a valid position that will not generate an additional valid position (lines 14-67 of column 33 and Fig. 28 and 31A; it is noted that at position when leftmost sense points are outside the edge of the primitive, it is concluded that there are no additional portions of the primitive to be considered (valid position), thus the position can be considered as sliver position, such as position 13 in Fig. 31A).

5.   Regarding claim 2, Voorhies discloses a method for area rasterization using sense points comprising:

Generating sliver information indicative of whether a plurality of the stamp

positions adjacent to the current stamp position are sliver positions (lines 14-67 of

column 33 and Fig. 28 and 28A-B; while claim recites sliver information, it is noted that

at position when leftmost sense points are outside the edge of the primitive, it is

concluded that there are no additional portions of the primitive to be considered (valid

position), thus the position can be considered as sliver position, such as position 13 in

Fig. 31A).

6.   Regarding claim 3, Voorhies discloses a method for area rasterization using sense

points comprising:

Based at least in part on the sliver information, moving the fragment stamp to a

next one of the stamp positions (lines 14-67 of column 33 and Fig. 28).

7.   Regarding claim 4, Voorhies discloses a method for area rasterization using sense

points comprising:

Determining whether a forward stamp position adjacent to the current stamp

position is a sliver position (lines 55-67 of column 33; rightward direction corresponds to

forward position);

Determining whether a back stamp position adjacent to the current stamp position

is a sliver position (lines 14-38 of column 33; leftward direction corresponds to back

position);

Determining whether an over stamp position adjacent to the current stamp

position is a valid position (lines 36-47 of column 33 and Fig. 28; while claim recites

over stamp position, the term is broadly enough to include the snap location, which is

being defined as the neighbor location of current position. And by determining if such

location exist can be consider as determining if it is a valid position).

8.   Regarding claim 5, Voorhies discloses a method for area rasterization using sense

points comprising:

        Determining whether the over stamp position is a sliver position (lines 41-45 of

column 33 and Fig. 28; it is noted that if the snap location (over stamp position) does

exist, the operations of determining whether portions of the primitive are remain to be

processed are executed, thus sliver position is determined).

9.   Regarding claim 6, Voorhies discloses a method for area rasterization using sense

points comprising:

        Based at least in part on the results of the evaluating step and based at least in part

on previously saved context information, moving the fragment stamp from the current

stamp position to a next one of the stamp positions (lines 14-67 of column 33 and Fig. 28;

the movement is being determined by evaluating step (element 2810 of Fig. 28) and

saved context information (element 2802 of Fig. 28)).

10.   Regarding claim 7, Voorhies discloses a method for area rasterization using sense

points comprising:

        Based at least in part on the results of the evaluating step, restoring from a stamp

context a previously saved stamp position so as to position the stamp in another stamp

position (lines 36-47 of column 33 and Fig. 28; the previously saved snap location is

being evaluated to determined to movement of the convex region with sense points, or

stamp).

11.   Regarding claim 8, Voorhies discloses a method for area rasterization using sense points comprising:

Moving the fragment stamp to one of an unvisited non-sliver valid forward stamp position and an unvisited non-sliver valid back stamp position, if any such stamp position exists (lines 28-32 and 55-62 of column 33 and Fig. 28-29; in Fig. 29A, it is noted that sense points region moves from 11 to 12 and from 14 to 15. Both positions 12 and 15 are correspond to non-sliver valid positions); otherwise moving the fragment stamp to an unvisited valid over stamp position, if any such stamp position exists (lines 22-32 of column 32 and Fig. 27-28; jump position corresponds to over position); and otherwise moving the fragment stamp to one of an unvisited sliver forward stamp position and an unvisited sliver back stamp position, if any such stamp position exists (lines 1-25 of column 36 and Fig. 30-31; in Fig. 31A, it is noted that at position 137, it is determined that there is no more unvisited jump (over) or rightward (forward) or leftward (backward) positions, the operation continues to positions 138 -246 where there are still unvisited sliver forward and back positions to be processed).

12.   Regarding claims 9 and 10, Voorhies discloses a method for area rasterization using sense points comprising:

Any one of the unvisited non-sliver valid forward stamp position, the unvisited non-sliver valid back stamp position, the unvisited valid over stamp position, the unvisited sliver forward stamp position and the unvisited sliver back stamp positions is either a stamp position adjacent to the current stamp position or a stamp position previously stored in one of a plurality of stamp contexts; and any one of the unvisted non-sliver valid forward stamp position and the unvisited sliver forward stamp position is a

stamp position adjacent to the current stamp position (lines 14-67 of column 33 and lines

10-16 of column 34 and Fig. 28-29; it is noted that jump positions (over) are previously

stored and rightward (forward) and leftward (back) positions are positions adjacent to the

current position).

13.   Regarding claim 10, statements presented above, with respect to claim 9 are

incorporated herein.

14.   Regarding claim 11, Voorhies discloses a method for area rasterization using

sense points comprising:

Moving the fragment stamp to an unvisited valid over stamp position, if any such

stamp position exists (lines 25-32 of column 32, lines 57-65 of column 35 and Fig. 30-31;

jump position corresponds to over positions); otherwise moving the fragment stamp to an

unvisited valid forward stamp position, if any such stamp position exists; and otherwise

moving the fragment stamp to a sliver forward stamp position, if any such stamp position

exists (lines 46-67 of column 36 and Fig. 31; in Fig. 31A, it is noted that at position 137,

there is no over (jump) position, and the process continues to positions 138-246 to

process unvisited forward position and/or sliver forward stamp positions).

15.   Regarding claims 12-13, statements presented above, with respect to claims 9-10

are incorporated herein. Furthermore, Voorhies discloses a method for area rasterization

using sense points comprising:

The unvisited valid over stamp position is a stamp position adjacent to the current

stamp position (Fig. 29A; it is noted that at position 7, position 8 is a over (jump) position

and is adjacent to the current position 7).

16.   Regarding claim 14, Voorhies discloses a method for area rasterization using sense points comprising:

Moving the fragment stamp to an unvisited valid over stamp position, if any such stamp position exists (lines 36-47 of column 33 and lines 10-16 of column 34); otherwise moving the fragment stamp to an unvisited non-sliver valid back stamp position, if any such stamp position exists; and otherwise moving the fragment stamp to an unvisited sliver back stamp position, if any such position exists (lines 14-38 of column 33; leftward direction corresponds to back positions).

17.   Regarding claim 15, statements presented above, with respect to claim 9 are incorporated herein.

18.   Regarding claim 16, statements presented above, with respect to claim 10 are incorporated herein.

19.   Regarding claim 17, Voorhies discloses a method for area rasterization using sense points comprising:

Moving the fragment stamp to an unvisited valid non-sliver over stamp position, if any such stamp position exists (Fig. 31; in Fig. 31 A, the position 61 moves to position 62 which correspond to non-sliver over (jump) position); otherwise moving the fragment stamp to an unvisited non-sliver valid forward stamp position, if any such stamp position exists and if a first predetermined condition is satisfied; otherwise moving the fragment stamp to an unvisited non-sliver valid back stamp position, if any such stamp position exists and if a second predetermined condition is satisfied; otherwise moving the fragment stamp to an unvisited sliver over stamp position, if any such stamp position exists; otherwise moving the fragment stamp to an unvisited sliver forward stamp

position, if any such stamp position exists and if a third predetermined condition is

satisfied; and otherwise moving the fragment stamp to an unvisited sliver back stamp

position, if any such stamp position exists and if a fourth predetermined condition is

satisfied (lines 46-67 of column 36 and Fig. 31; in Fig. 31A, it is noted that at position

136, since there is no over (jump) position, the process continues to position 137 which is

a unvisited sliver forward (rightward) position, and there is no other valid positions

possible, thus, limitation of claim is met. Furthermore, the process then continues to

positions 138-246 to process unvisited positions).

20.   Regarding claim 18 and 19, statements presented above, with respect to claims 9-

10 are incorporated herein. Furthermore, Voorhies discloses a method for area

rasterization using sense points comprising:

Any one of the unvisited non-sliver valid over stamp position and the unvisited

sliver over stamp positions is either a stamp position adjacent to the current stamp

position or a stamp position previously stored in one of a plurality of stamp contexts and

any one of the unvisited non-sliver valid over stamp position and the unvisited sliver over

stamp position is a stamp position adjacent to the current stamp position (lines 14-67 of

column 33 and lines 10-16 of column 34 and Fig. 28-29 and 31; in Fig. 31A, position 61

is adjacent to the unvisited non-sliver over (jump) position 62 and position 13 is adjacent

to the unvisited sliver over (jump) position 14).

21.   Regarding claim 20, Voorhies discloses a method for area rasterization using

sense points comprising:

Based at least in part on the results of the evaluating step, saving information

associated with a stamp position that is adjacent to a current stamp position into a

corresponding stamp context of a plurality of stamp contexts; the saved information

including said stamp position (lines 48-52 of column 33 and Fig. 28; it is noted that the

current position is being evaluated to store over (jump) position. While claim recites

plurality of stamp contexts, it is noted that the evaluations is being done on multiple

positions and thus a plurality of over (jump) positions are being calculated and stored).

22.   Regarding claim 21, Voorhies discloses a method for area rasterization using

sense points comprising:

The saved information further comprises sliver information (lines 48-52 of

column 33 and Fig. 28; position of the sliver is being calculated and saved).

23.   Regarding claim 28, Voorhies discloses a method for area rasterization using

sense points comprising:

The stamp comprises a rectangle having a top edge, a bottom edge, a left edge and

a right edge, and wherein the probes external to the stamp are placed such that: all probes

above the top edge are no farther above said top edge than the lowest sample point in the

stamp is from the bottom edge; all probes below the bottom edge are no farther below

said bottom edge than the highest sample point in the stamp is from the top edge; all

probes to the left of the left edge are no farther to the left of said left edge than the

rightmost sample point in the stamp is from the right edge; all probes to the right of the

right edge are no farther to the right of said right edge than the leftmost sample point in

the stamp is from the left edge (lines 13-17 of column 32 and Fig. 27A and 29A; since

placing the rectangle region with predetermined pixel size in non-overlapped manner on

the object, the distance of the points will be consistent in all 4 edges of the rectangle).

24.   Regarding claim 29, Voorhies discloses a method for area rasterization using

sense points comprising:

The stamp is a rectangle having a top edge, a bottom edge, a left edge and a right

edge, and wherein the probes points external to the stamp are placed such that a segment

between the probes points that is evaluated for intersection with the graphics object in

order to compute valid or sliver bits satisfies the following constraints: the stamp position

immediately above has no sample point below said segment; the stamp position

immediately below has no sample point above said segment; the stamp position

immediately to the left has no sample point to the right of said segment; the stamp

position immediately to the right has no sample point to the left of said segment (lines 18-

33 of column 34 and Fig. 27A).

25.   Regarding claim 40, statements presented above, with respect to claim 1 are

incorporated herein. Furthermore, Voorhies discloses a method for area rasterization

using sense points comprising:

A graphics processor for rendering an image including a graphic object; a frame

buffer memory configured to store information associated with the graphic object;

graphics circuitry configured to render the graphic object with a fragment stamp one

stamp position at a time (lines 35-40 and lines 61-66 of column 1, lines 14-25 of column

7 and lines 15-26 of column 40 and Fig. 1-2; processing modules correspond to graphic

processor).

26.   Regarding claim 41-43, statements presented above, with respect to claims 2, 3

and 6 are incorporated herein.

27.   Regarding claim 44, statements presented above, with respect to claim 7 are incorporated herein. Furthermore, it is noted that in Fig. 27-28, it is being validated that the current row is being processed and if a previously stored jump position is found, then the position is restored and moved accordingly.

28.   Regarding claim 45, statements presented above, with respect to claim 23 are incorporated herein.

Allowable Subject Matter

29.   Claims 22, 24-27, 30, 32 and 45 are allowed.

30.   Claims 46-57 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

31.   Applicant's arguments filed June 1, 2004 have been fully considered but they are not persuasive.

Regarding claims 1 and 40, Applicant argues reference does not teach or suggest the limitations of sliver positions. However, this is known in the art taught by Voorhies (lines 14-67 of column 33 and Fig. 28 and 31A). The position where leftmost sense points are outside the edge of the primitive indicates that there are no additional portions of the primitive to be considered (valid position), thus the position can be considered as sliver position, such as position 13 in Fig. 31A).

Conclusion

32.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the

advisory action. In no event, however, will the statutory period for reply expire later than

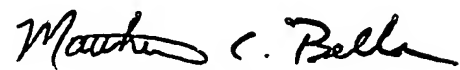SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Po-Wei (Dennis) Chen whose telephone number is (703)

305-8365. The examiner can normally be reached on Monday-Thursday from 8:30 AM

to 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Matthew C Bella can be reached on (703) 308-6829. The fax phone number

for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is (703) 305-

3900.

Po-Wei (Dennis) Chen
Examiner
Art Unit 2676

Po-Wei (Dennis) Chen
August 13, 2004

MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600